

VIA TELEFAX AND OVERNIGHT MAIL

October 15, 2001

Jon Heinrich
Wisconsin Department of Natural Resources AM/7
101 South Webster Street
Madison, WI 53702

RE: NWF's revised comments on Wisconsin's proposed mercury reduction rule

Dear Mr. Heinrich:

The National Wildlife Federation submits these revised comments in support of strengthening the Wisconsin Department of Natural Resources (DNR) proposed rule to reduce mercury releases in Wisconsin. These comments replace our comments dated October 12, 2001.

The National Wildlife Federation is the nation's largest conservation education and advocacy group, with four million members and supporters. The DNR's proposed rule is a critical step in protecting the health of the state's people and wildlife, but it is not protective enough. As discussed below, the DNR should strengthen the final rule so that it cuts mercury emissions deeper and faster from each and every significant mercury source in the state.

NWF has in the past submitted comments, testimony and reports on the proposed rule to the DNR and the Wisconsin Public Service Commission (PSC). In September, we published and submitted to the DNR a report, *Rain Check: Conservation Groups Monitor Mercury Levels in Milwaukee's Rain*. On October 1, we testified before the DNR in Milwaukee. These prior comments, testimony and report are meant to be considered in conjunction with these comments. For convenience, we resubmit the report and the PSC comments with these comments. (Note: these materials were submitted with our October 12 comments, and are incorporated by reference in these revised comments).

Our report, *Rain Check*, discusses the hazards that mercury poses to people and wildlife in Wisconsin. The report also traces the potential sources of mercury in Wisconsin's lakes and streams, demonstrating that most of the mercury present in the state comes from pollution sources within Wisconsin. Our comments to the PSC show that requiring Wisconsin power plants to achieve a 90 percent cut in mercury emissions would be cost-effective and would maintain energy reliability.ⁱ

In these comments, we will focus on rebutting several inaccurate claims that have been made by certain industry spokespersons. We also make recommendations to strengthen

the proposed rule in ways necessary to ensure protection of the state's lakes and streams, and the people and wildlife who depend on them.

As an initial matter, however, we need to make clear that the mercury reduction rule, if strengthened and promulgated, will lead to mercury reductions not just from Wisconsin sources, but from sources throughout the Great Lakes and nationally. A number of states and the U.S. EPA are considering mercury phaseout proposals for Michigan, Ohio, Minnesota, Indiana, and other states. Likewise, the U.S. EPA is developing a national regulation to reduce power plant mercury emissions, and Congress is considering several bills that would require such reductions. Wisconsin's adoption of a protective rule would have beneficial ripple effects in all these efforts. By setting the example of what one state can accomplish, other states and the federal government will have a much easier task in obtaining needed mercury reductions. This is more than moral leadership; it also is self-interest. By making mercury reductions easier in other jurisdictions, Wisconsin will help protect its own lakes and streams from cross-boundary mercury pollution.

Wisconsin's Mercury Comes Mostly From Wisconsin Pollution Sources

Several industry spokespeople have claimed that Wisconsin cannot clean up mercury contamination because the mercury in Wisconsin's rain comes from China, Russia, and Louisiana, and not Wisconsin.

These industry claims are far-fetched and self-serving, a desperate attempt to thwart the DNR's proposal to require reduction of mercury pollution in the state. According to the DNR's own data, **at least half of Wisconsin's mercury comes from Wisconsin**. If anything, the fraction of mercury coming from Wisconsin's pollution sources is even higher than the DNR estimates. Consider the evidence:

- A scientist from the National Oceanic and Atmospheric Administration (NOAA), Dr. Mark Cohen, has obtained preliminary results from modeling he has conducted to determine the source of mercury deposition into the Great Lakes. His model has determined the percentage of mercury deposition to the Great Lakes from all sources within the U.S. and Canada (although not from global sources outside those two countries). His conclusions for Lake Michigan: 43 percent of the mercury deposition in Lake Michigan comes from sources within 60 miles of the lake; 68 percent of the lake's mercury deposition comes from mercury sources within 240 miles; and 82 percent of the deposition in the lake comes from mercury sources with 420 miles. The models also show that fossil fuel combustion is the largest source of sector contributing mercury to all five Great Lakes.ⁱⁱ
- These results are consistent with those in other regions. Scientists researching a similar question in New England have concluded that up to seventy percent of the mercury in New England comes from pollution sources within that relatively small region.ⁱⁱⁱ

- From models, scientists estimate that the amount of mercury falling east of the Mississippi is ten times higher than the deposition falling west of the Mississippi. Global sources cannot be responsible for this difference; the global pool would fall fairly evenly over the eastern and western halves of the nation. Local and regional sources (and to a lesser extent precipitation differences) must be responsible for these differences in mercury precipitation.^{iv}
- While it is true that the global mercury pool is many time larger than the amount of mercury from Wisconsin sources, the global mercury pool falls over the entire planet, and not just on Wisconsin. Wisconsin has less than three ten-thousandths (.0003) of the area of the earth. Mercury from global sources falls on the other 99.97 percent of the planet's surface as much as it falls in this state.

Several opponents to the rule also have argued that elemental mercury – a portion of the mercury emitted by power plants and chlor alkali facilities – should not be the subject of regulation because it rapidly enters the global pool and is not deposited in Wisconsin in any significant amounts. This argument is contradicted by the research, described above, showing that Wisconsin's mercury comes mostly from Wisconsin sources. In addition, the DNR has its own data that rebut this argument. In a study published in 1997, scientists (including one DNR researcher) examined the impact of mercury emissions from the Vulcan Materials chlor alkali plant on nearby lichen.^v The Vulcan plant emits almost entirely elemental mercury, and there are no other significant mercury sources nearby. The study found that mercury levels in lichen near the plant were far higher than those farther away from the plant. The highest concentrations were at the closest point measured, 250 meters from the plant. At 1250 meters from the plant, the concentrations declined by a factor of 10. This deposition pattern indicates that emissions from the facility did indeed have a local impact, and that elemental mercury can be deposited (either directly, or through rapid transformation) locally. For convenience, this study has been provided with our original October 12, 2001 comments, and is incorporated by reference herein.

It is wishful thinking by state mercury polluters to claim that Wisconsin's mercury comes from Russia, China and other sources. Wisconsin's mercury comes mostly from Wisconsin.

The Costs Of Reducing Mercury Are Far Outweighed By The Benefits

Some industry sources have claimed that the costs of implementing the proposed rule will be between \$1.4 billion and \$3.3 billion. Those estimates are grossly inflated when compared to objective government data. The U.S. EPA estimates that the **national** cost of reducing mercury from power plants by 80 percent will only be \$1.7 to \$2.7 billion.^{vi} It strains credulity to think that the costs to Wisconsin's power plants would exceed the costs to the power plants in all 50 states combined.

The real costs are likely to be much lower than claimed by the utilities – lower by several orders of magnitude. The attached analysis of the cost issue was conducted by NWF's

staff scientist, Dr. Michael Murray, and is based on the data most recently developed by the U.S. EPA in its Information Collection Request for Utilities. Dr. Murray's analysis demonstrates that the cost of implementing the proposed 90 percent mercury reduction rule on Wisconsin utilities would be between \$35 million and \$59.4 million annually. This estimate is far below the billions of dollars in costs estimated by several industry spokespersons. These comments incorporate by reference Dr. Murray's attached analysis.

We have been told that the multi-billion dollar cost estimates from the utilities are based on a scenario in which the utilities are forced to switch to natural gas. The utilities say the type of coal they now use— western coal — emits elemental mercury, which end-of-stack control technologies do not remove. They claim that they will have no choice but to change their plants to natural gas, since they cannot obtain sufficient quantities of eastern coal. This scenario is flawed in several respects:

- The utilities' assumption that current technologies cannot sufficiently remove elemental mercury from power plant emissions simply is wrong. There are in fact end-of-stack controls that successfully remove up to 90 percent of elemental mercury from power plant emissions. Carbon injection is one such technology that has proven to be effective, and others are under development. Many academic and government researchers have published studies that support this conclusion. (See U.S. EPA-DOE-EPRI Combined Power Plant Air Pollutant Control Symposium, and the A&WMA Specialty Conference on Mercury Emissions: Fate, Effects, and Control, August 20-23, 2001). And as discussed above, the cost of many of those controls is several orders of magnitude less than the utilities have claimed for switching to natural gas.
- Even if such technologies were not available now, the DNR rule gives the utilities 14 years to develop them. The utilities' assumption they will have to switch fuels ignores the long lead-in period that will allow them to develop new removal technologies.
- The utilities fuel-switching scenario is unrealistic even for fuel switching. It fails to take into account energy savings from energy conservation, efficiency, and co-generation. These measures will substantially reduce energy demand *and* save consumers money. A report by the Environmental Law and Policy Center in 2001, *Repowering the Midwest*, predicts that by relying more on a combination of energy efficiency and renewable fuel sources, Wisconsin's reliance on coal can decline from 71 percent of its energy mix today to 33 percent by 2020. Electricity costs would increase only slightly: 1.5 percent by 2010, and 3.4 percent by 2020.
- If catastrophe strikes and it becomes technically impossible to remove elemental mercury or switch to new fuels in a cost-effective way, the proposed rule allows the utilities to obtain a variance.

Compare these reasonable costs of reducing mercury to the alternative: fish so contaminated with mercury that the state has issued health advisories for every Wisconsin lake and stream warning people to avoid or restrict their consumption of certain species of fish. The costs of that contamination are enormous. According to testing conducted by

the Centers for Disease Control in Atlanta, one in ten women in the U.S. have mercury in their blood at concentrations that exceed the levels EPA considers to be safe. This translates to 390,000 children born in the U.S. each year at risk for adverse developmental and neurological impacts from mercury. The economic costs also are high. According to the American Sportsfishing Association, Wisconsin's sportfishing industry brings over \$2 billion to the state each year; those revenues are at risk as people realize that their catch is contaminated with mercury.

The Wisconsin Rule Needs To Be Made More, Not Less, Protective

As discussed in NWF's *Rain Check* report, the proposed rule is not strong enough to restore Wisconsin's lakes and streams and to protect the people and wildlife who depend on them. The mercury reductions need to be deeper; they need to occur faster; and they need to apply to all significant sources.

Scientific data suggest that because mercury is so harmful in such small amounts, the "safe" level for people and wildlife is extremely low; in fact, it is approximately the same level as the natural background (the amount of mercury from natural sources). Scientists estimate that mercury levels in the environment have increased by a factor of about 2 to 4.5 over natural background levels due to human sources of mercury.^{vii} At the same time, commonly found levels of mercury in water and fish in the Great Lakes region range between 2 and 10 times higher than the levels the EPA and Wisconsin consider to be safe.^{viii} To reduce the levels of mercury in water and fish to protective levels, we will need to reduce the mercury levels in the environment by the same ratio -- that is, to natural background levels.

Reduction of mercury levels to natural background requires a complete phaseout of mercury by all major human sources. No one can reduce the natural background levels; but we can and should phase out our mercury releases from human sources. Indeed, the governments of the United States and Canada agreed to do just that in the 1978 Great Lakes Water Quality Agreement, which calls for virtual elimination of mercury in the Great Lakes basin. Power plants are the largest source in Wisconsin and nationally, and therefore must be the priority target for reductions.

We know this will take time. A coalition of environmental and conservation organizations have proposed a mercury phaseout initiative in Wisconsin and in other states in the Great Lakes basin to reduce mercury releases from all sources by 90 percent by 2010, and to virtually eliminate mercury releases by 2020. These dates are far enough in the future to be realistic, yet close enough to prompt responsible and aggressive reduction measures.

The Wisconsin DNR's proposed Mercury Reduction Rule is a good first step. It mandates reductions of 90 percent for coal-fired power plants, the largest contributor, and establishes reduction measures for other major sources. However, the DNR's rule needs to be strengthened as follows:

- The schedule for reductions needs to be shortened and strengthened. The 90 percent target should be achieved by 2010, and virtual elimination should be achieved by 2020.
- The reduction target should apply equally to all significant contributors, not just to power plants.
- The proposal should not rely on offsets or trading. Each source should be required to meet the reduction targets. However, if offsets are allowed, they should be as narrow as possible. Trading should never occur between sectors or between media (that is, only mercury emissions reductions should qualify for offsets of other mercury emissions). Offsets should only be allowed for emissions reductions that are real, surplus, and conclusively quantified. If major stack sources are allowed to trade emissions credits with other major stack sources, the amount reduced should exceed the amount offset by at least a ratio of 1.5 to 1. Finally, if offsets are allowed, they should only occur after each facility has achieved the maximum feasible mercury reduction. Tests by the Department of Energy and the utilities themselves have demonstrated that coal-fired plants can achieve reductions of 90 percent or more; such reductions should be required before offsets are allowed.
- Regardless of the offset, each plant's mercury emissions should decline over time so that those emissions will eventually be eliminated.
- The Rule contains an overly broad variance provision. The variance allows the Department to extend the compliance schedule unilaterally based on technical feasibility and energy reliability. Such a variance could create a gaping loophole in the law. Any variance should be limited in duration, with the burden on the applicant to prove that a variance is necessary. No variance should extend longer than two years.

Conclusion

We commend the DNR for its work to date on developing a mercury reduction rule. Although proposed rule is a good first step, it needs to be strengthened so that it will protect people and wildlife from mercury exposure. We urge the DNR to resist the pressure being applied by industries that now profit from mercury pollution, and to publish a stronger final rule.

Respectfully submitted,

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National Wildlife Federation

ⁱ Because our comments to the PSC included an inaccurate per pound mercury removal cost estimate on the fourth page, please use the cost figures from these comments to the DNR in lieu of the per pound mercury removal cost estimates in the PSC comments. The remainder of the PSC comments are accurate and are incorporated by reference herein.

ⁱⁱ Dr. Cohen is presenting these results in a paper, “The Atmospheric Transport and Deposition of Mercury to the Great Lakes,” at the Sixth International Conference on Mercury as a Global Pollutant, Oct. 15-19, in Mimimata, Japan. As indicated in the text, his study’s deposition percentages for mercury are based on deposition from all sources in the U.S. and Canada, but not from sources in other nations. For Lake Michigan, Dr. Cohen has compared the total deposition he calculated from these sources to the total deposition measured by the Lake Michigan Mass Balance Study, and found totals to be close. The deposition in Lake Michigan attributable to sources outside the US and Canada therefore is likely to be quite small, and should not significantly affect the percentages in his study.

ⁱⁱⁱ New England Governors/Eastern Canadian Premiers Mercury Action Plan (1998), citing the Northeast States and Eastern Canadian Provinces Mercury Study (NESCAUM/NEWMOA/NEIWPCC/EMAN 1998).

^{iv} Bullock, O.R., Jr., Benjey, W.G., Keating, M.H., 1997, Modeling of regional scale atmospheric mercury transport and deposition using RELMAP, *In* Baker, J.E., Ed., *Atmospheric Deposition of Contaminants to the Great Lakes and Coastal Waters*, SETAC Press, Pensacola, FL, pp. 323-347; Northeast States for Coordinated Air Use Management, *Northeast States and Eastern Canadian Provinces Mercury Study: A Framework for Action* (Boston, MA: NESCAUM, February 1998).

^v M. M. Makholm, J.P. Bennett, “Mercury Accumulation in Transplanted *Hypogymnia Physodes* Lichens Downwind of Wisconsin Chlor-Alkali Plant,” *Water, Air and Soil Pollution*, 102:427-436, 1998.

^{vi} EPA Mercury Control Cost summary, ICF Consulting, Sept. 30, 2000, page 9, found at <http://www.epa.gov/ttn/atw/combust/utltox/hgmemo.pdf>. These cost estimates were used by EPA in making its regulatory determination to develop MACT standards for power plants.

^{vii} R. P. Mason, W. F. Fitzgerald, and F. M. M. Morel, “The Biogeochemical Cycling of Elemental Mercury: Anthropogenic Influences,” *Geochimica et Cosmochimica Acta*, 58(15) (1994), pp. 3191-3198.

^{viii} For water, see for example J. P. Hurley, S. E. Cowell, M. M. Shafer, P. E. Hughes, Tributary Loading of Mercury to Lake Michigan: Importance of Seasonal Events and Phase Partitioning, *Science of the Total Environment*, 213 (1998), 129-137; and J. P.

Hurley, J. M. Benoit, C. L. Babiarz, M. M. Shafer, A. W. Andren, J. R. Sullivan, R. Hammond, D. A. Webb, Influences of Watershed Characteristics on Mercury Levels in Wisconsin Rivers, *Environmental Science & Technology*, 29 (1995), 1867-1875. For fish tissue, see for example C. R. Hammerschmidt, J. G. Wiener, B. E. Frazier, R. G. Rada, Methylmercury Content of Eggs in Yellow Perch Related to Maternal Exposure in Four Wisconsin Lakes, *Environmental Science & Technology*, 33 (1999), 999-1003.